

FIG. 1

10

32

HISTORICAL
PROCESS DATA

12

METAL
DEPOSITION

14

INLINE
METROLOGY

16

CMP

18

POST-CMP
METRICS

24

NEURAL
NETWORK

22

NEURAL
NETWORK

30

IN-LINE
METROLOGY
FEED-FORWARD
INFORMATION PATH

28

IN-LINE
METROLOGY
FEEDBACK
INFORMATION PATH

IN-LINE
METROLOGY FEEDBACK
INFORMATION PATH

20

CRYSTAL
STANDARD

POST-CMP FEEDBACK INFORMATION PATH

FIG. 2

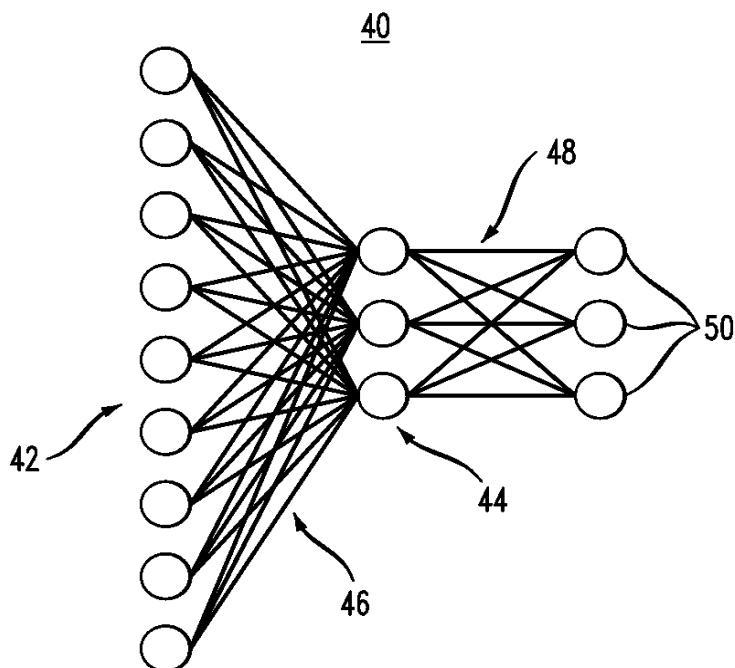


FIG. 3

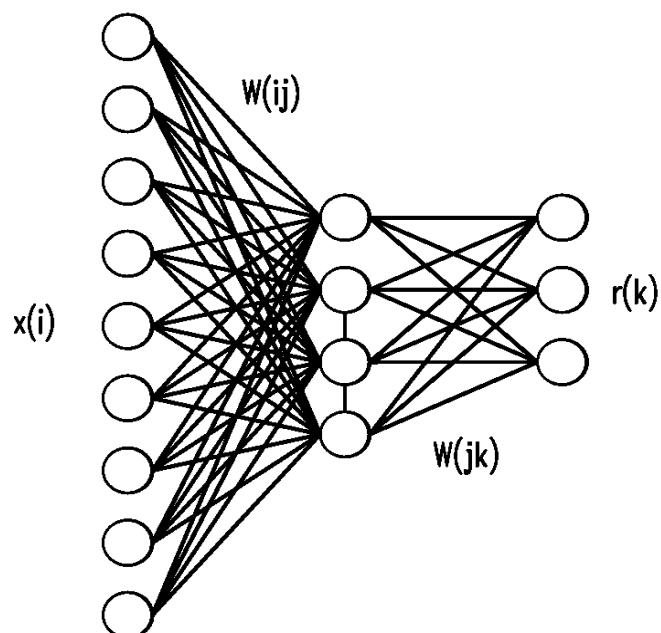
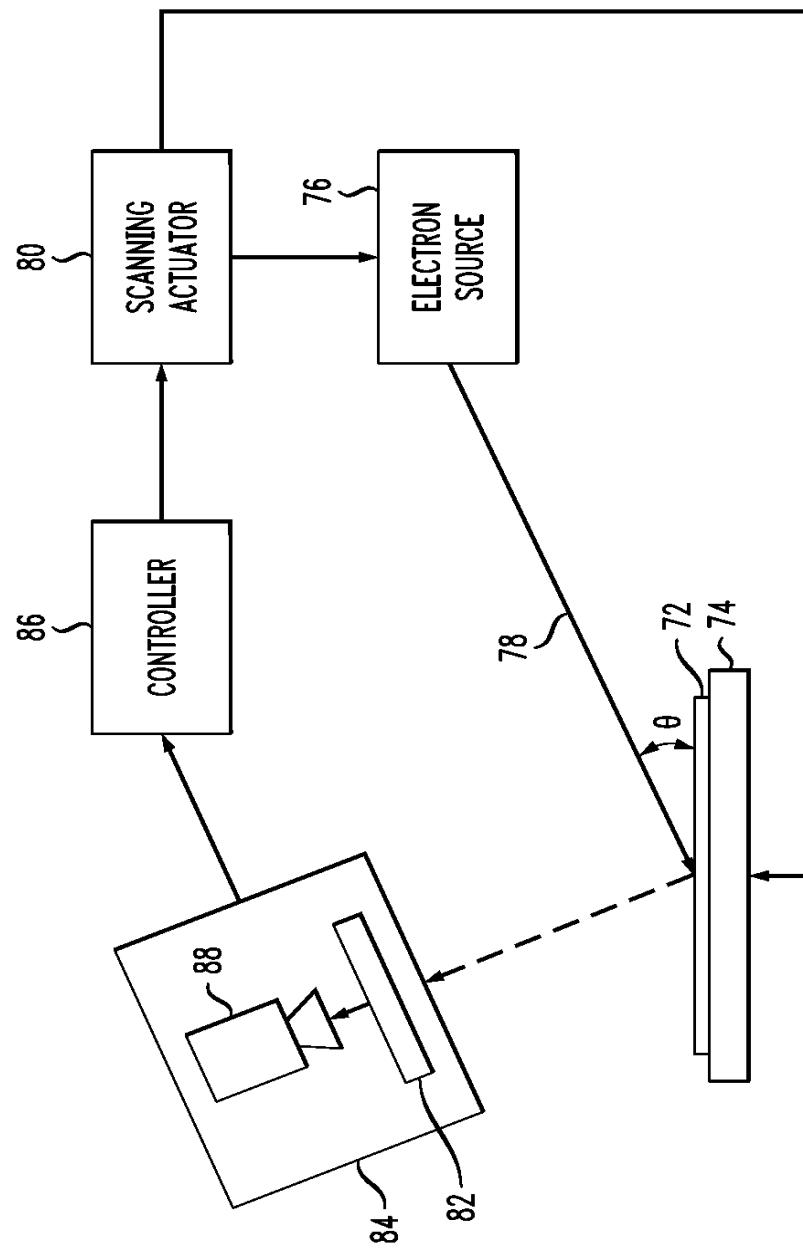


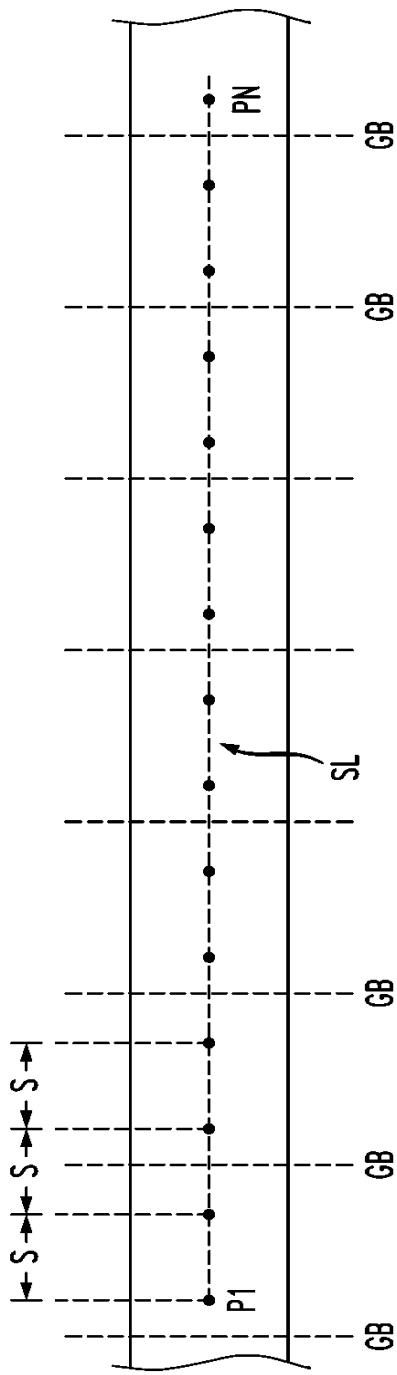
FIG. 4
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HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

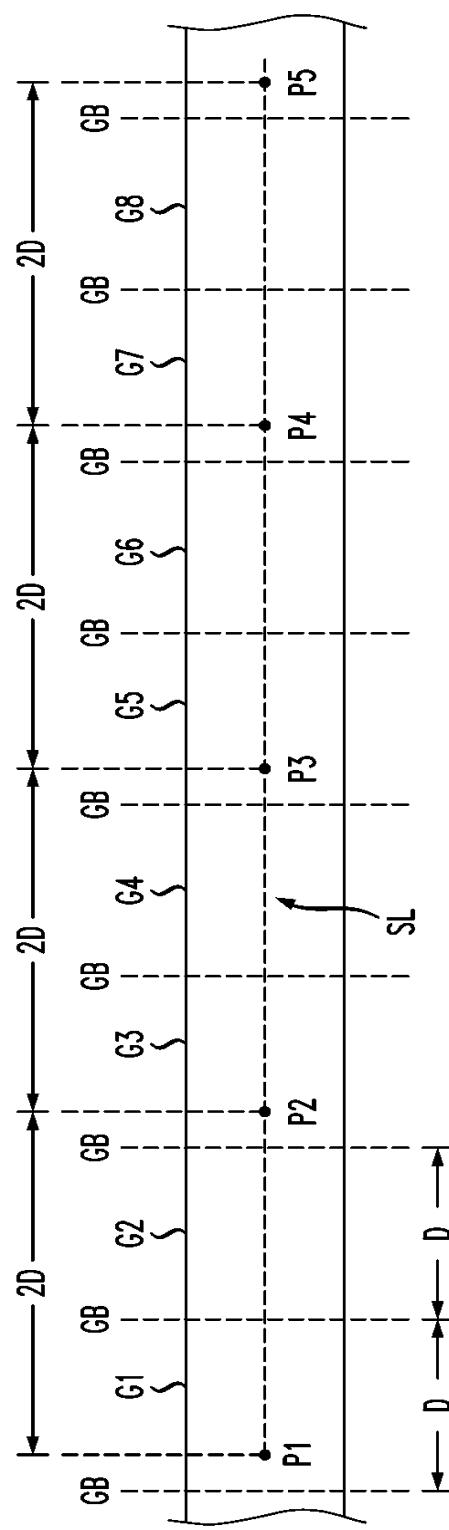
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FIG. 5
PRIOR ART



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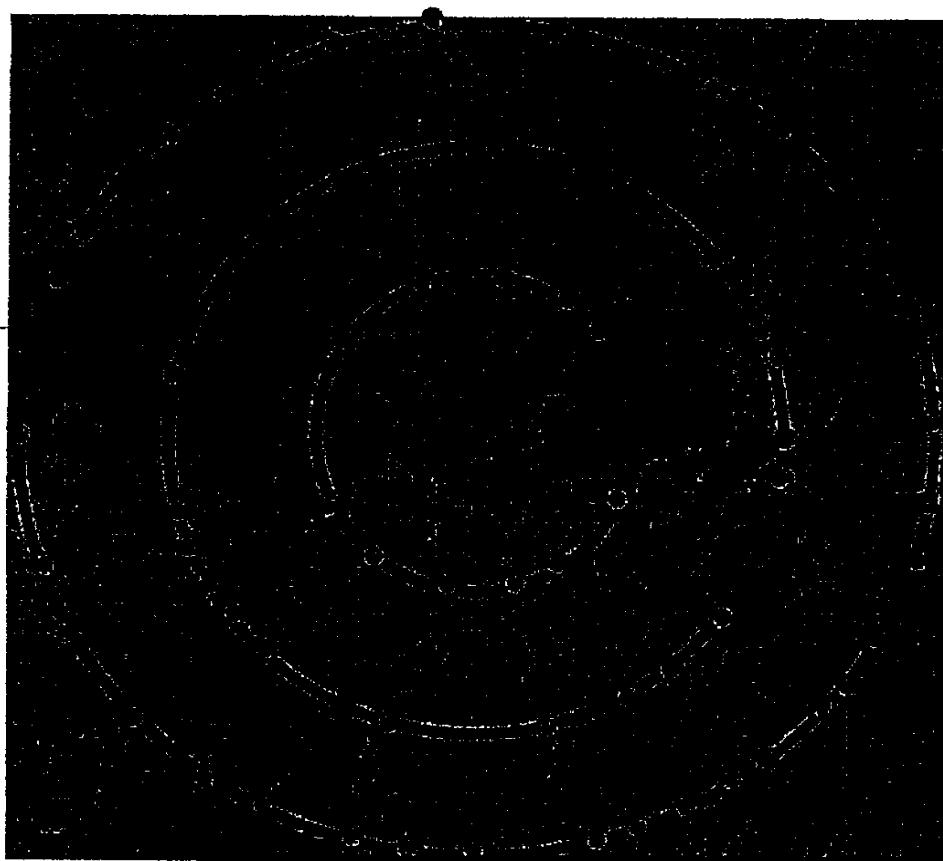
FIG. 6A



HOUGE 31-1-3-30
Serial No. 10/505,198
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FIG. 6B



7.00 μm = 35 steps

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FIG. 7

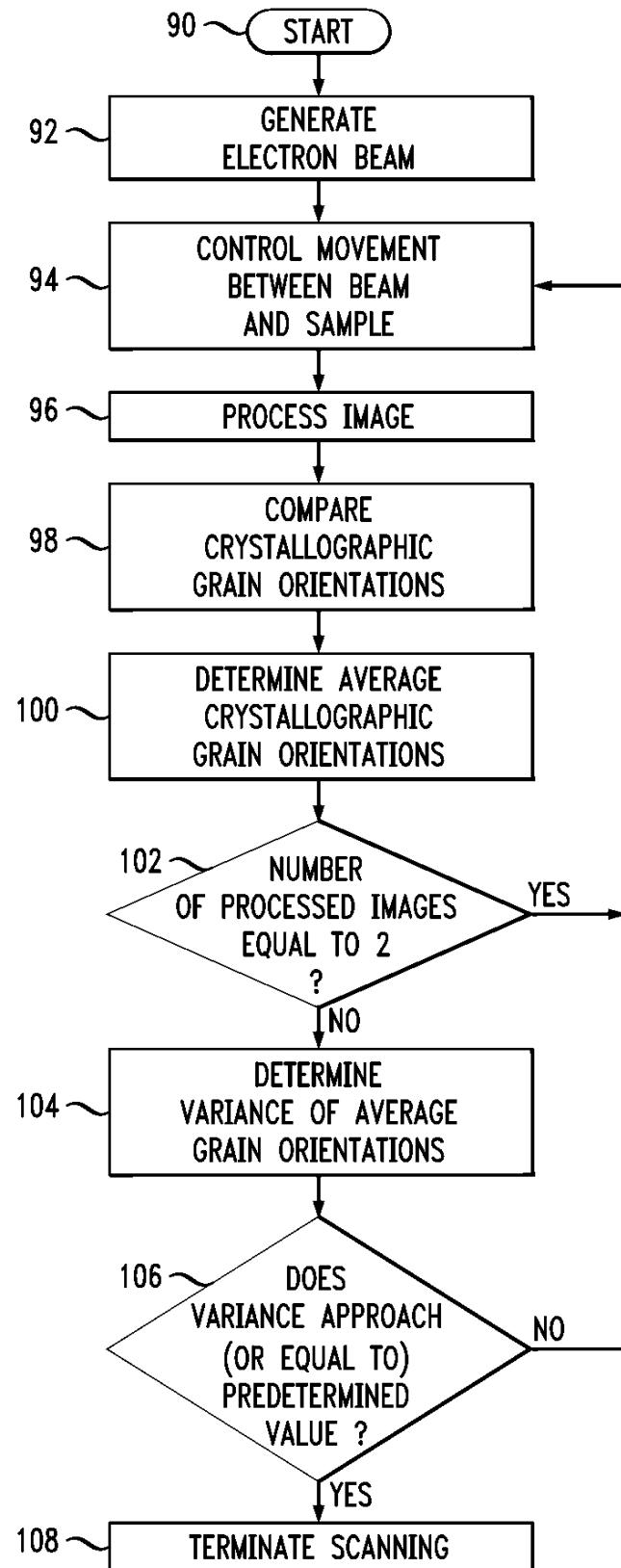


FIG. 8

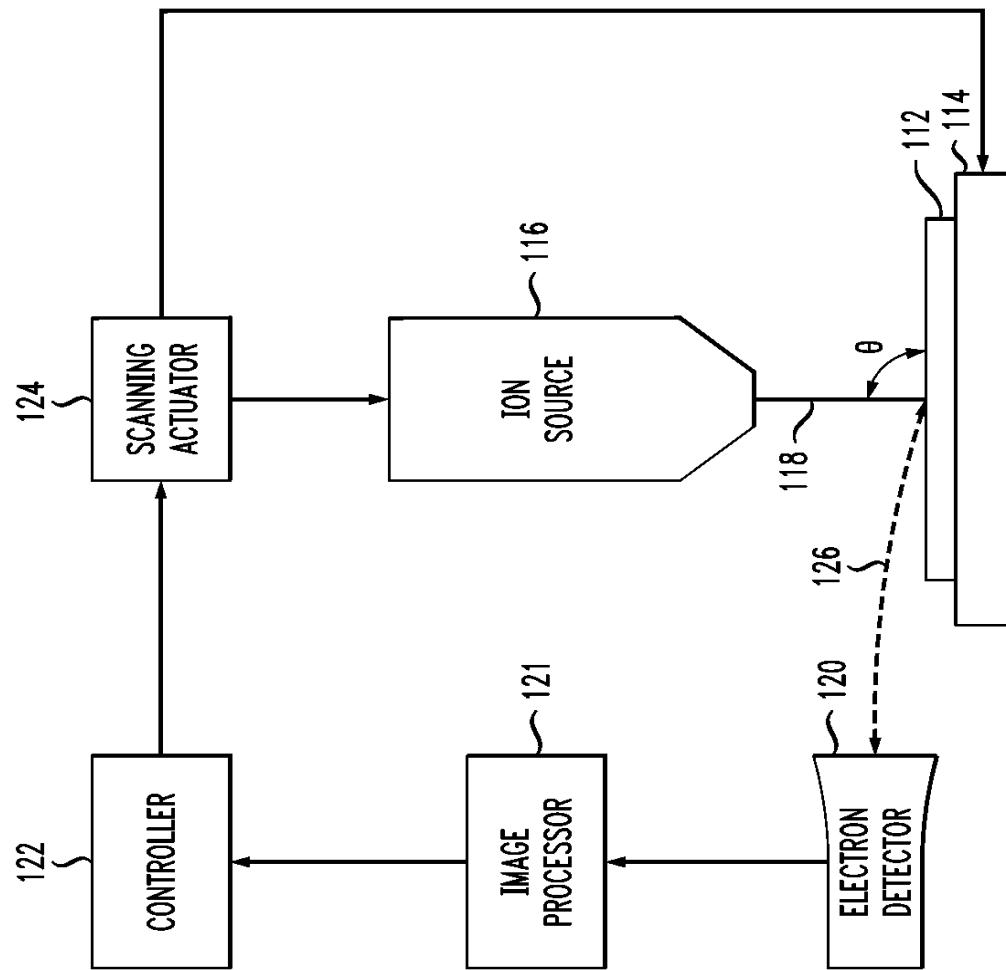
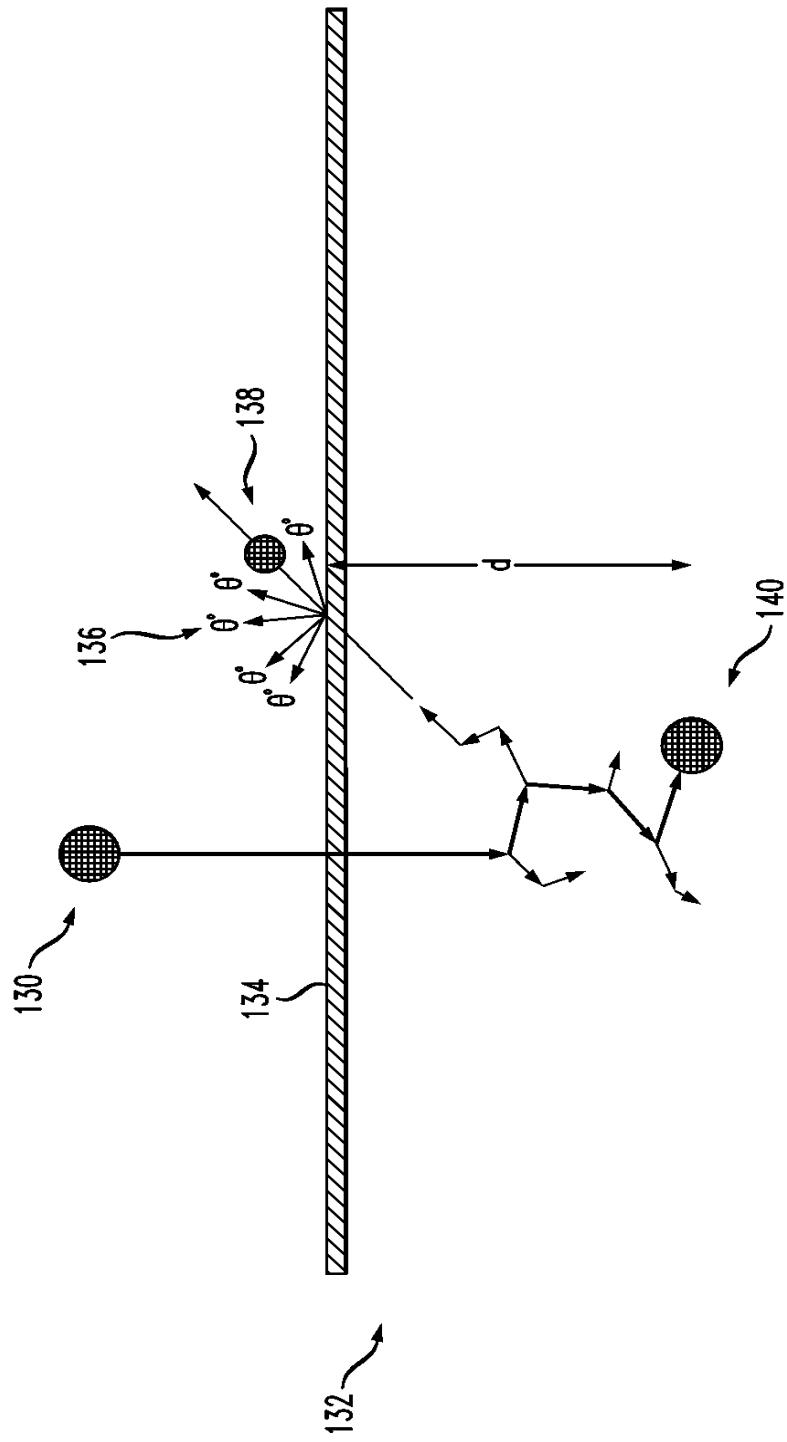


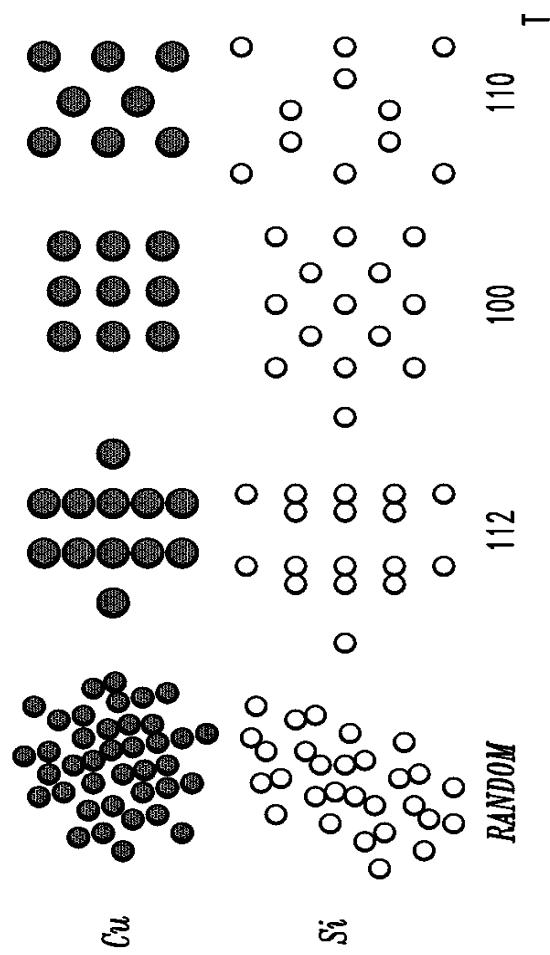
FIG. 9



HOUGE 31-1-3-30
Serial No. 10/505,198
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REPLACEMENT SHEET

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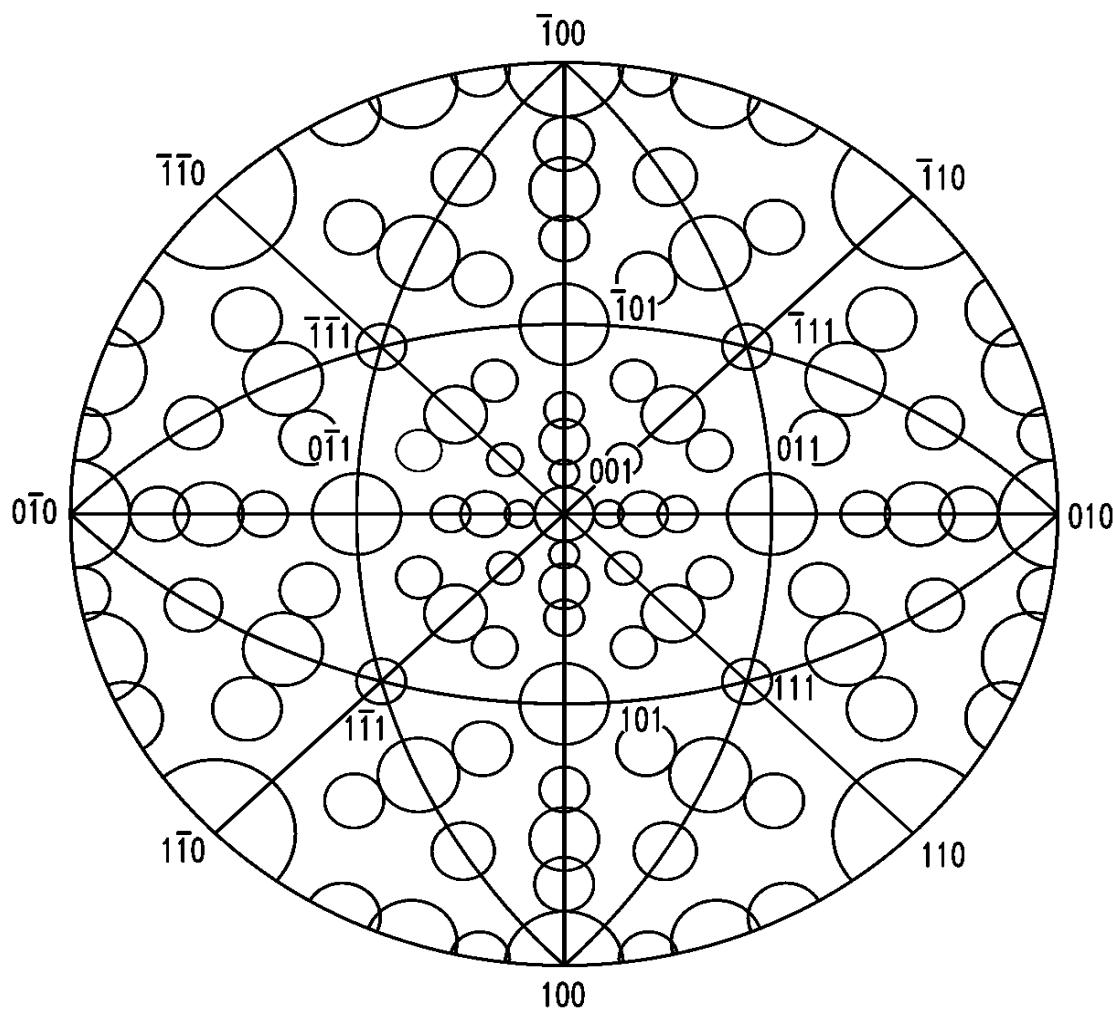
FIG. 10



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 11



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 12A

Cu (001) <110>

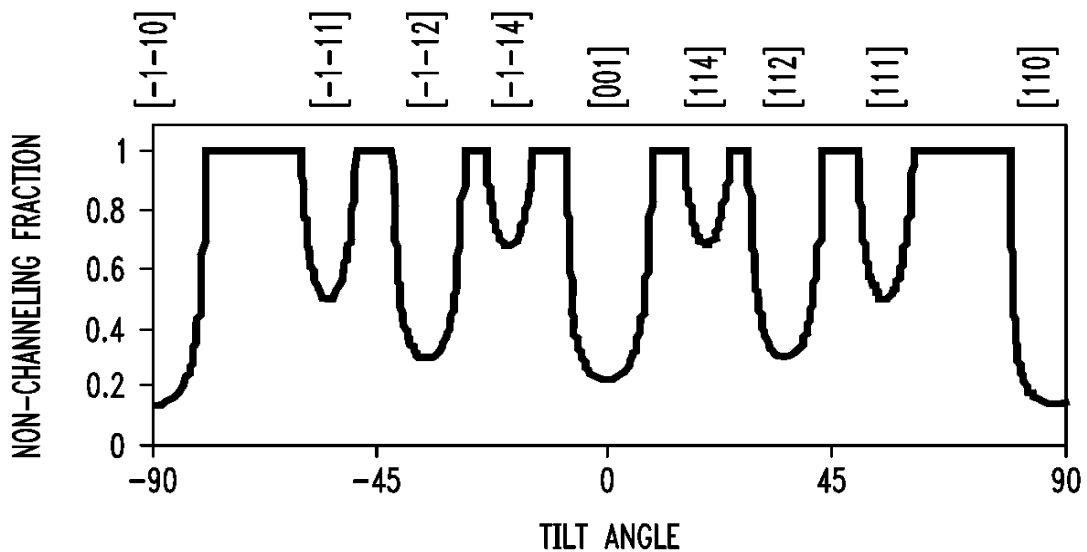
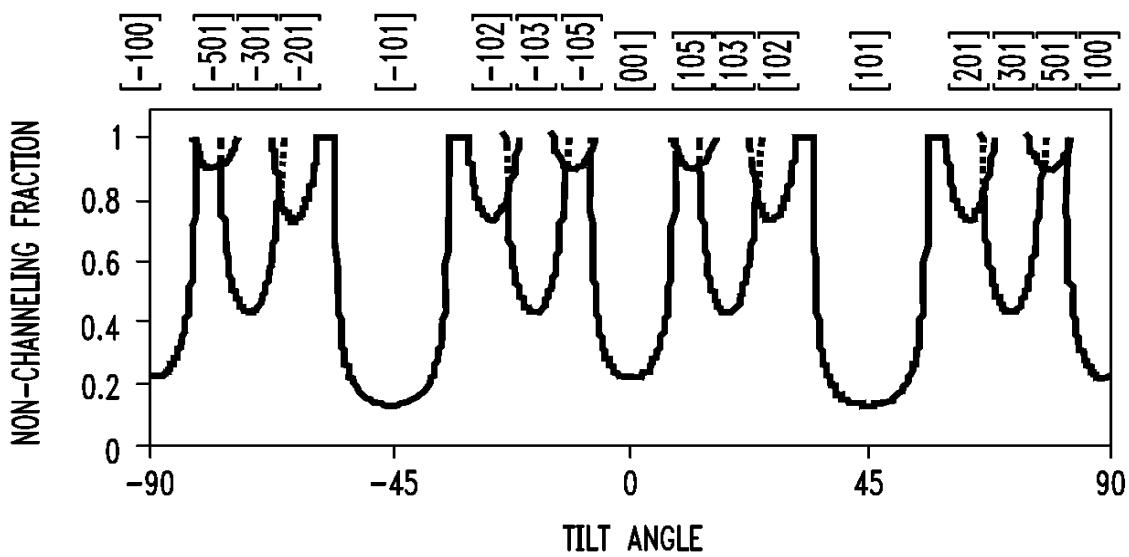


FIG. 12B

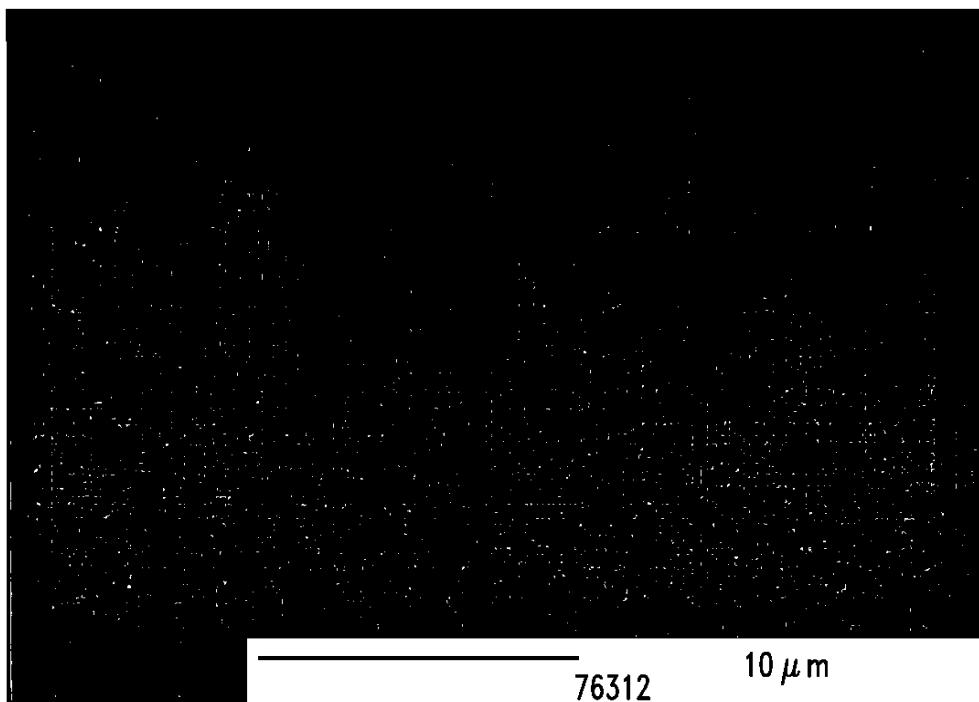
Cu (001) <100>



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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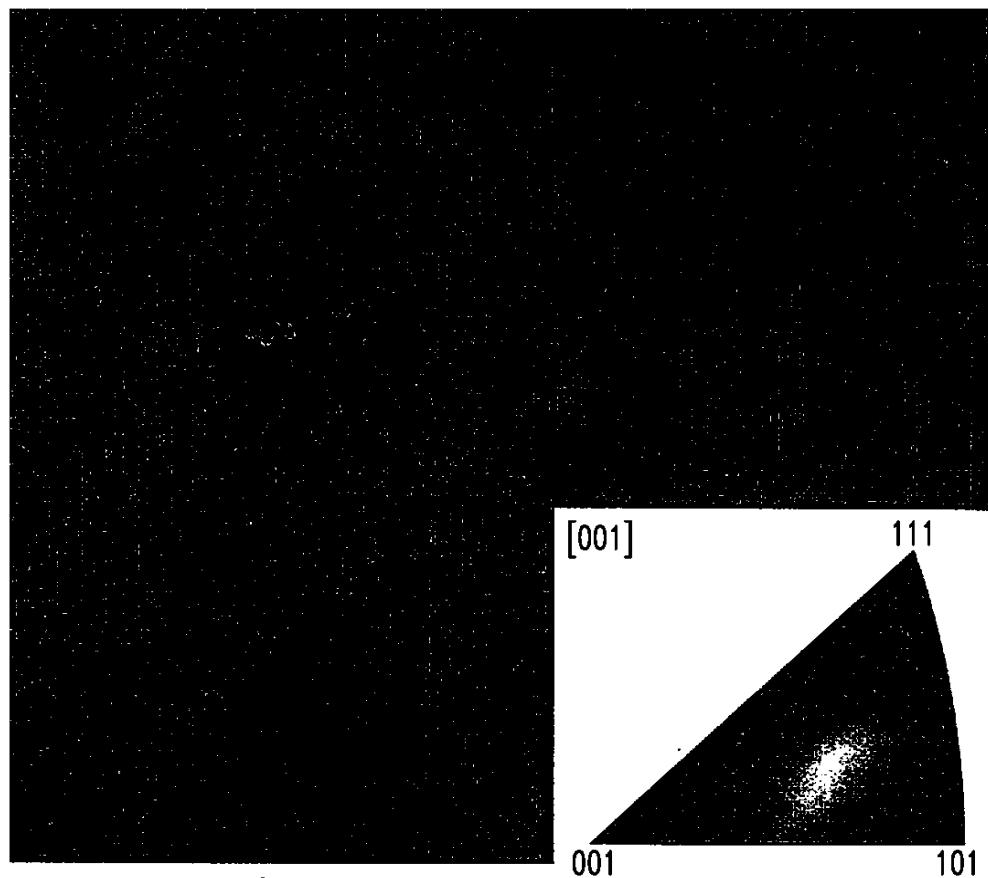
FIG. 13A



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 13B

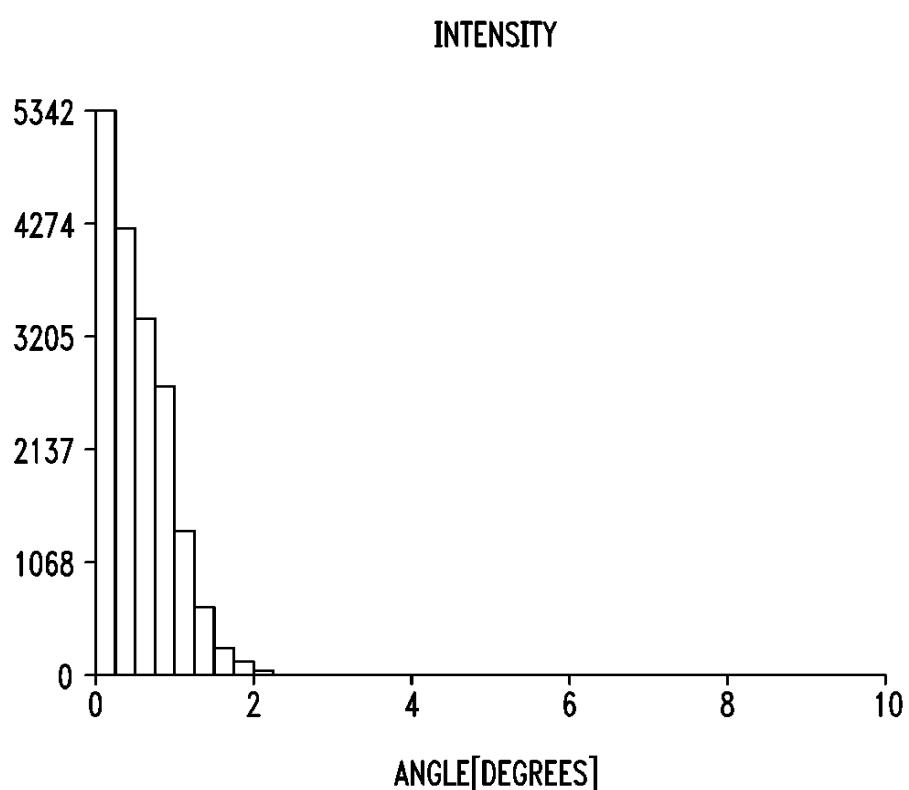


5.00 μm = 25 STEPS IPF MAP [001]

HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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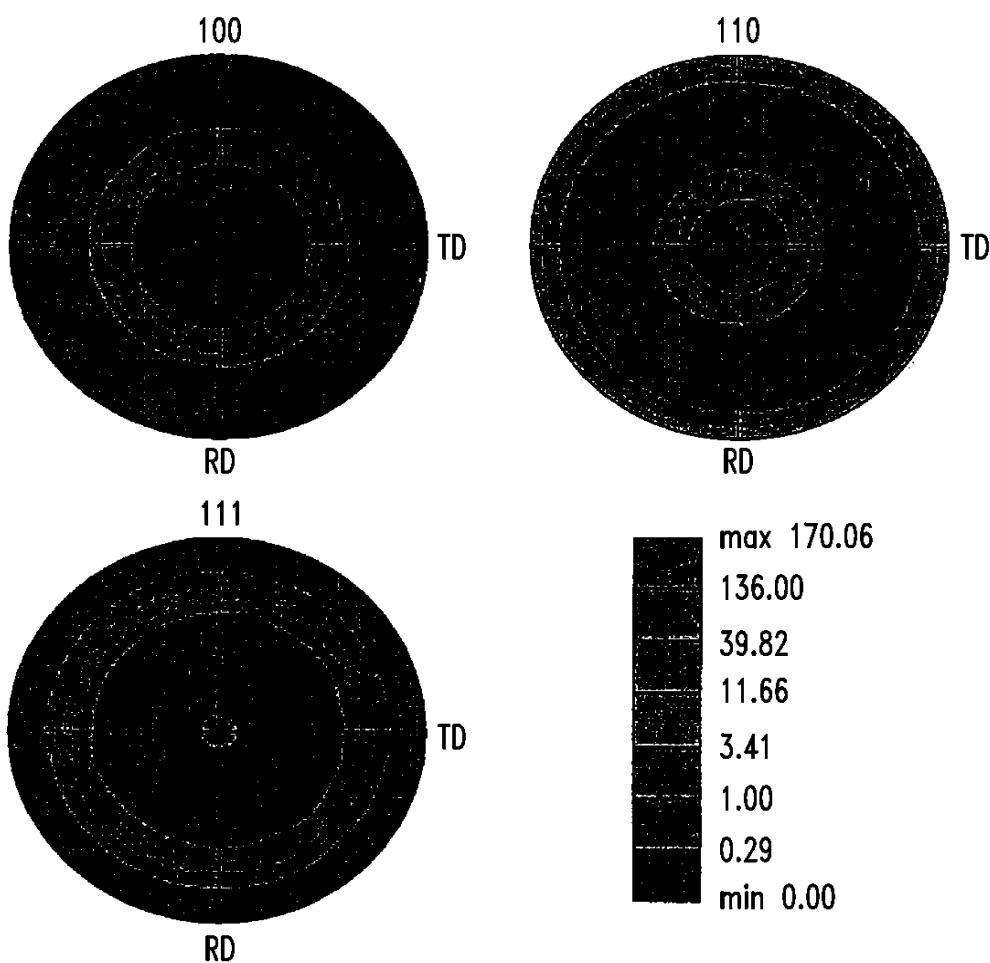
FIG. 14



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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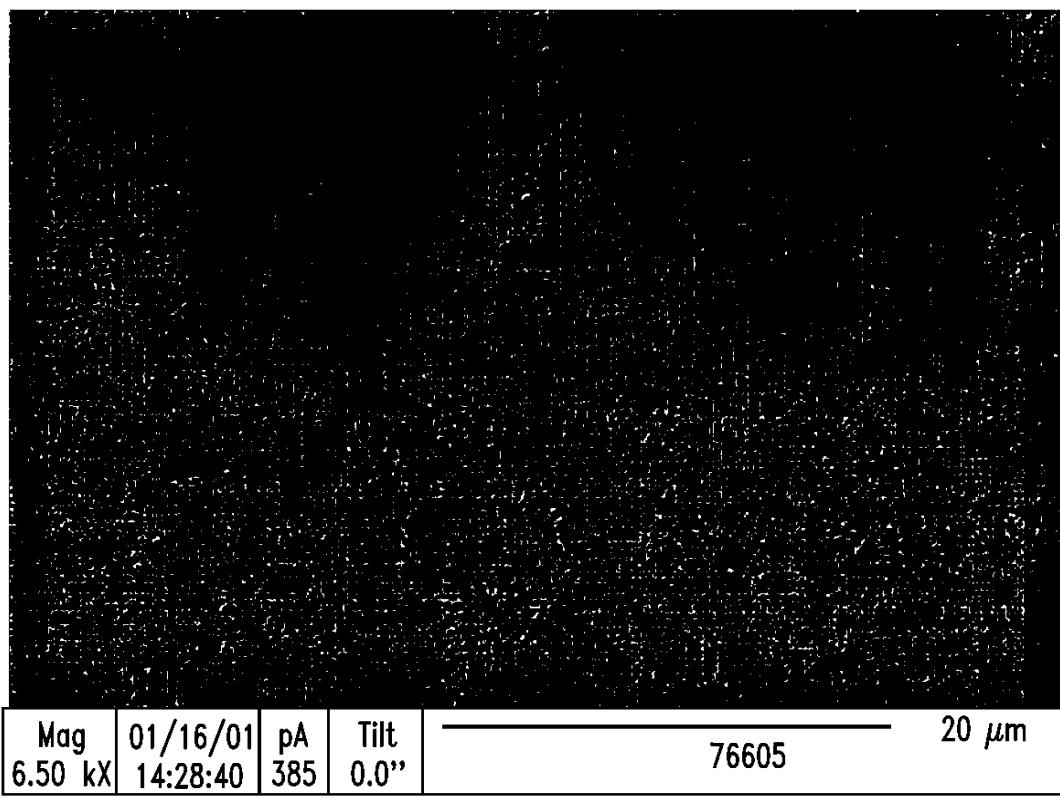
FIG. 15



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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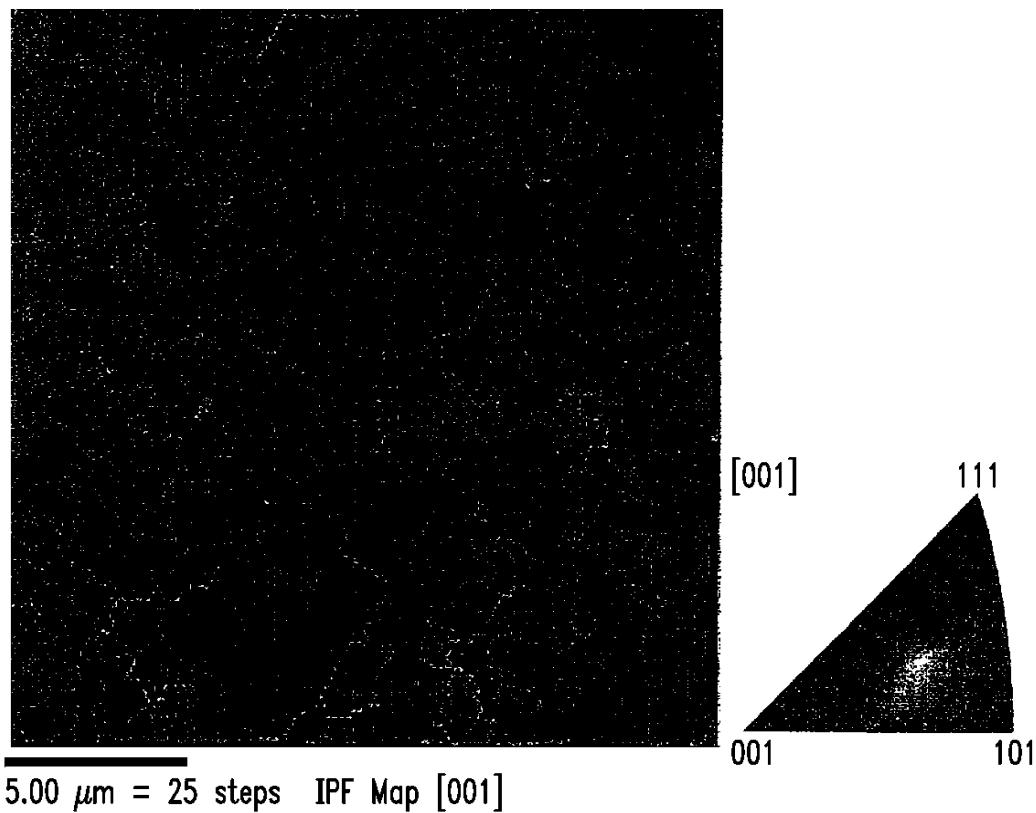
FIG. 16A



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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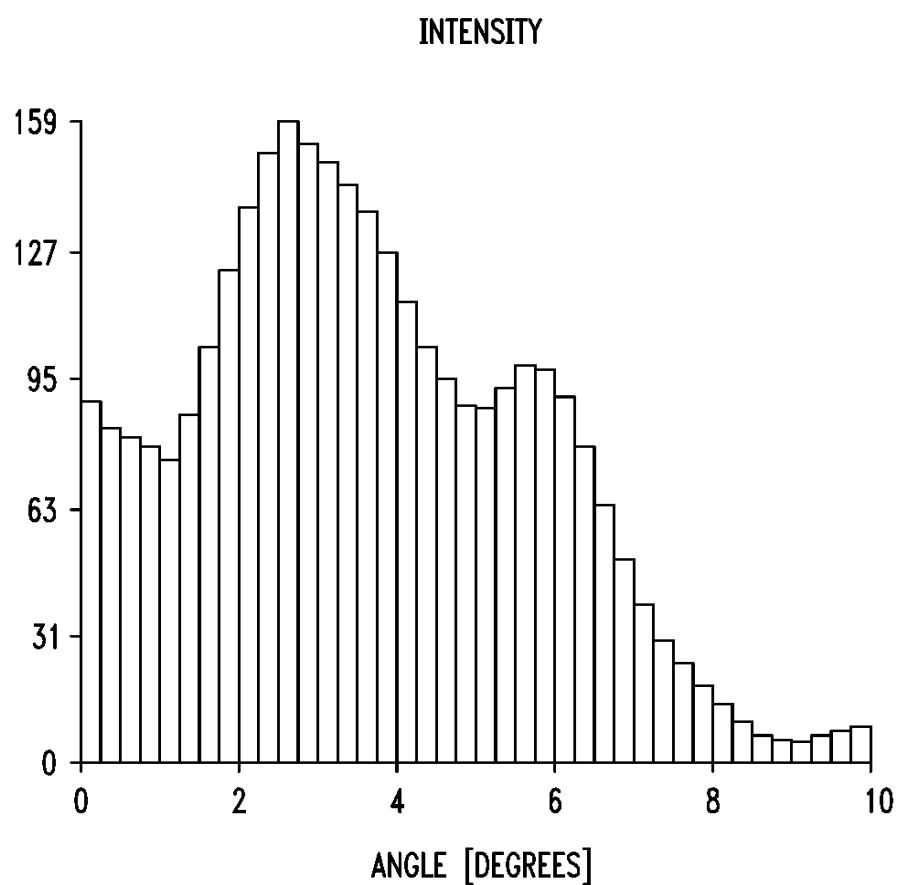
FIG. 16B



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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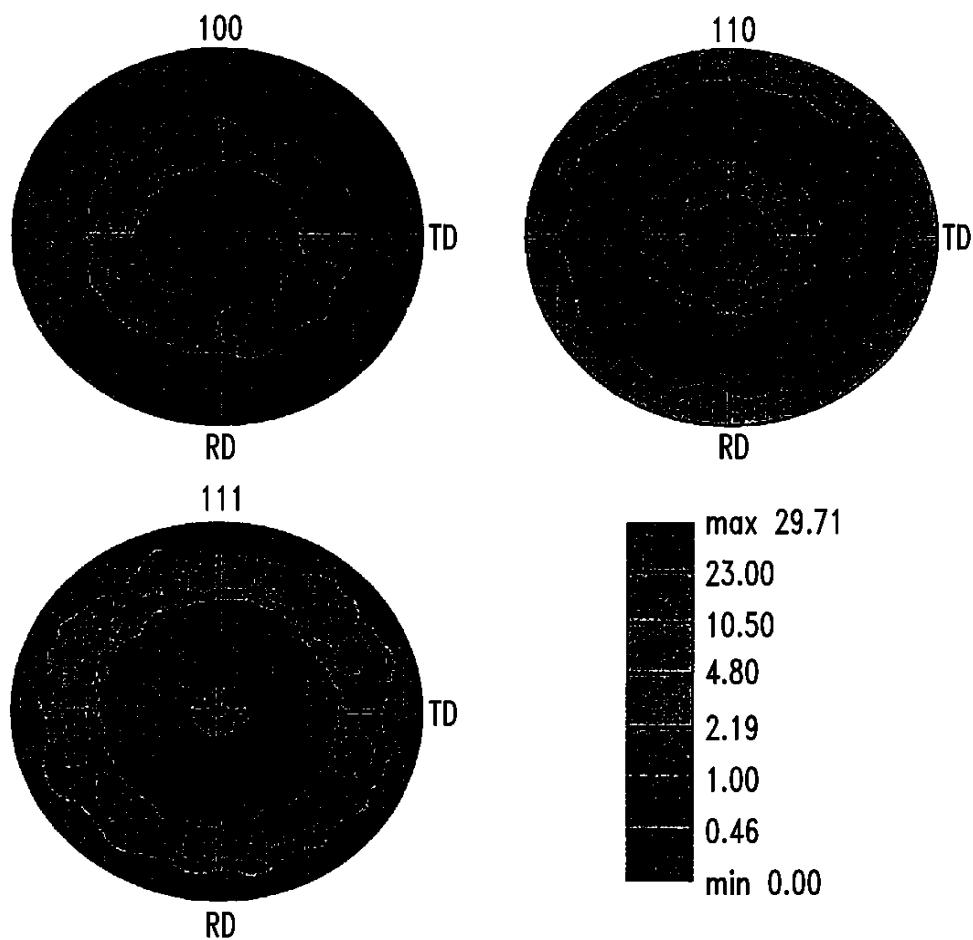
FIG. 17



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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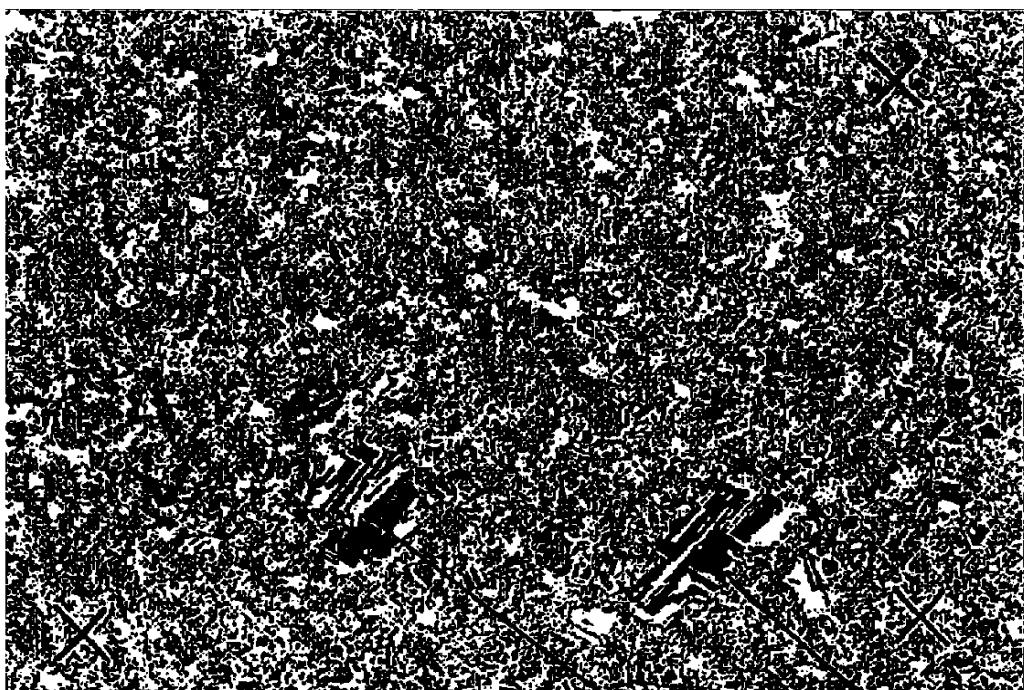
FIG. 18



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 19A



Mag	01/22/01	pA	Tilt		20 μm
6.50 kX	17:26:56	380	-0.0"	#3	

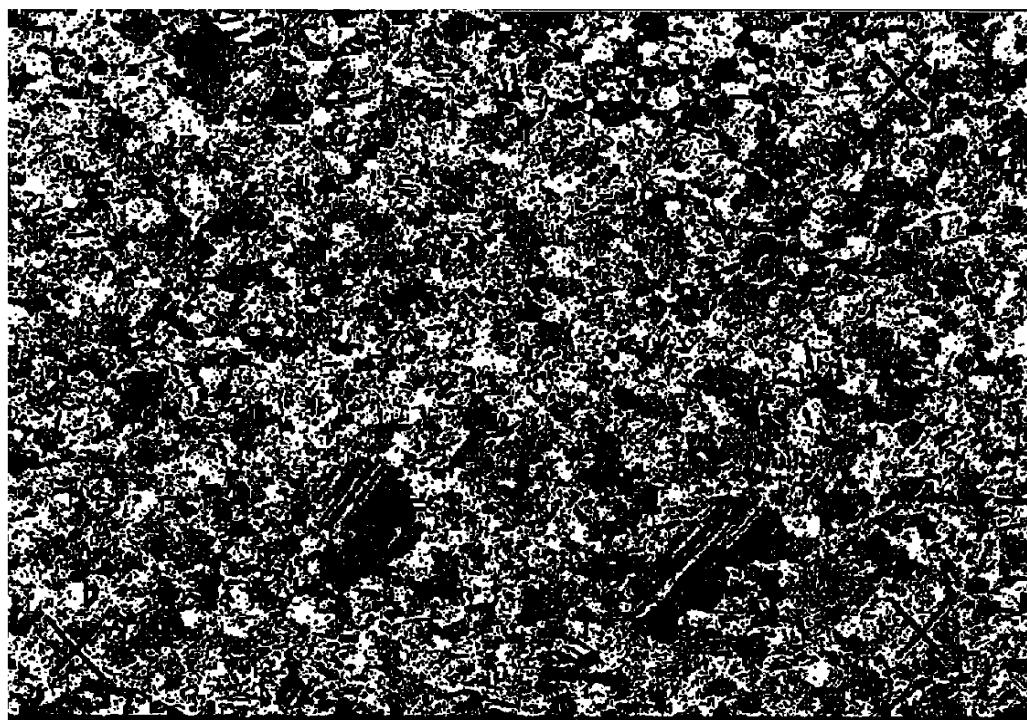
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HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 19B



Mag	01/22/01	pA	Tilt	—	20 μm
6.50 kX	17:29:08	69.3	15.0°	47175	

HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 20

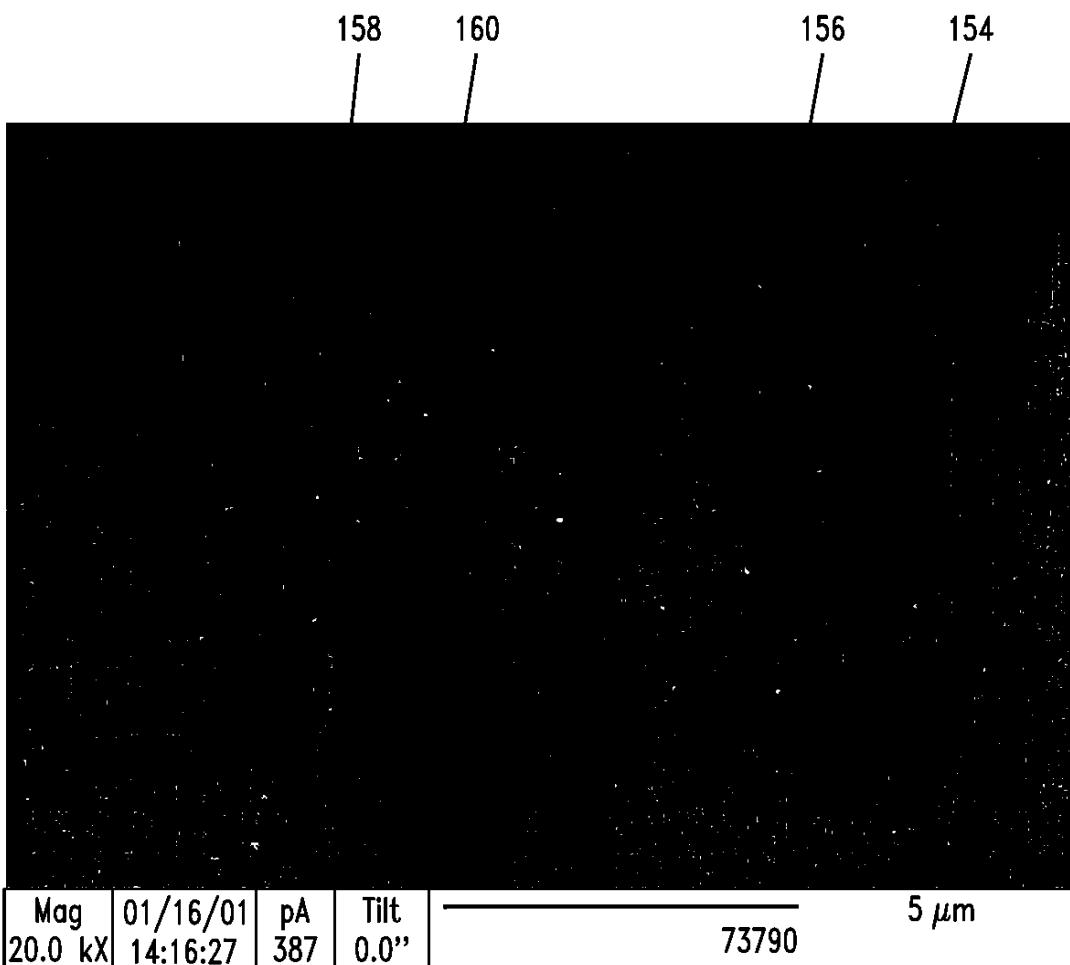


4.50 μm = 45 steps IPF Map [001]

HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 21



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 22

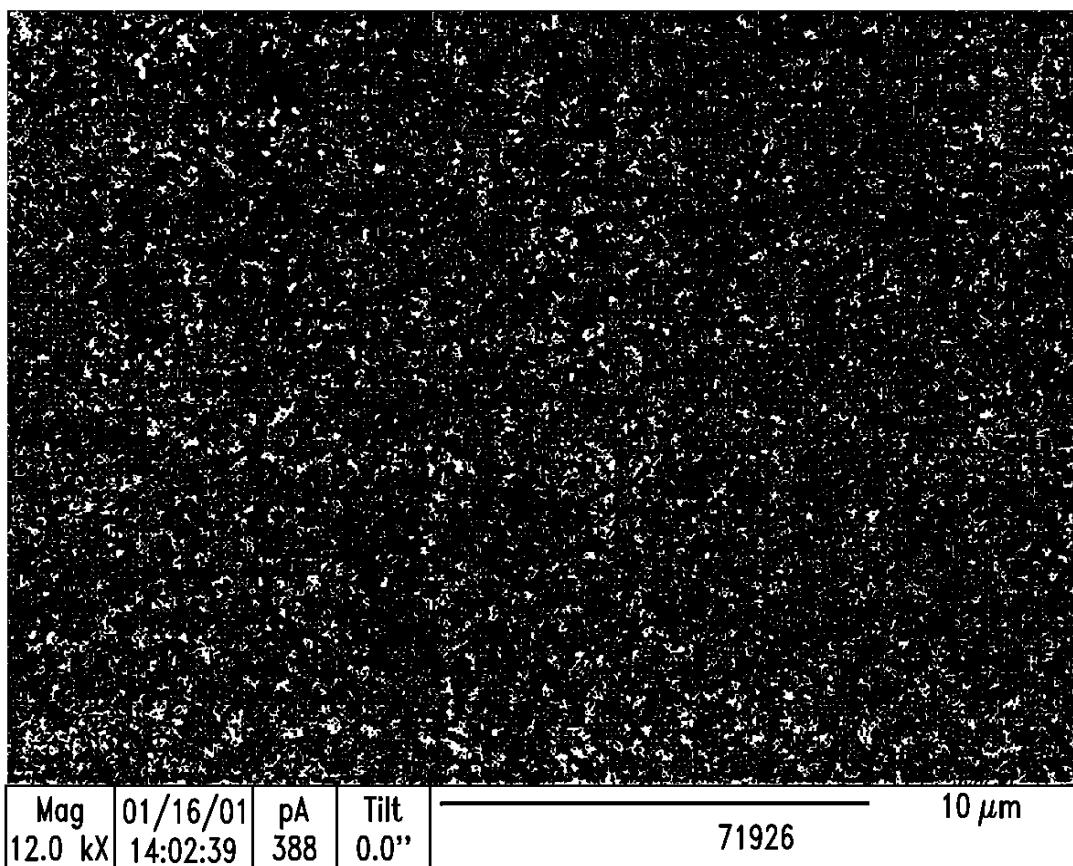


FIG. 23

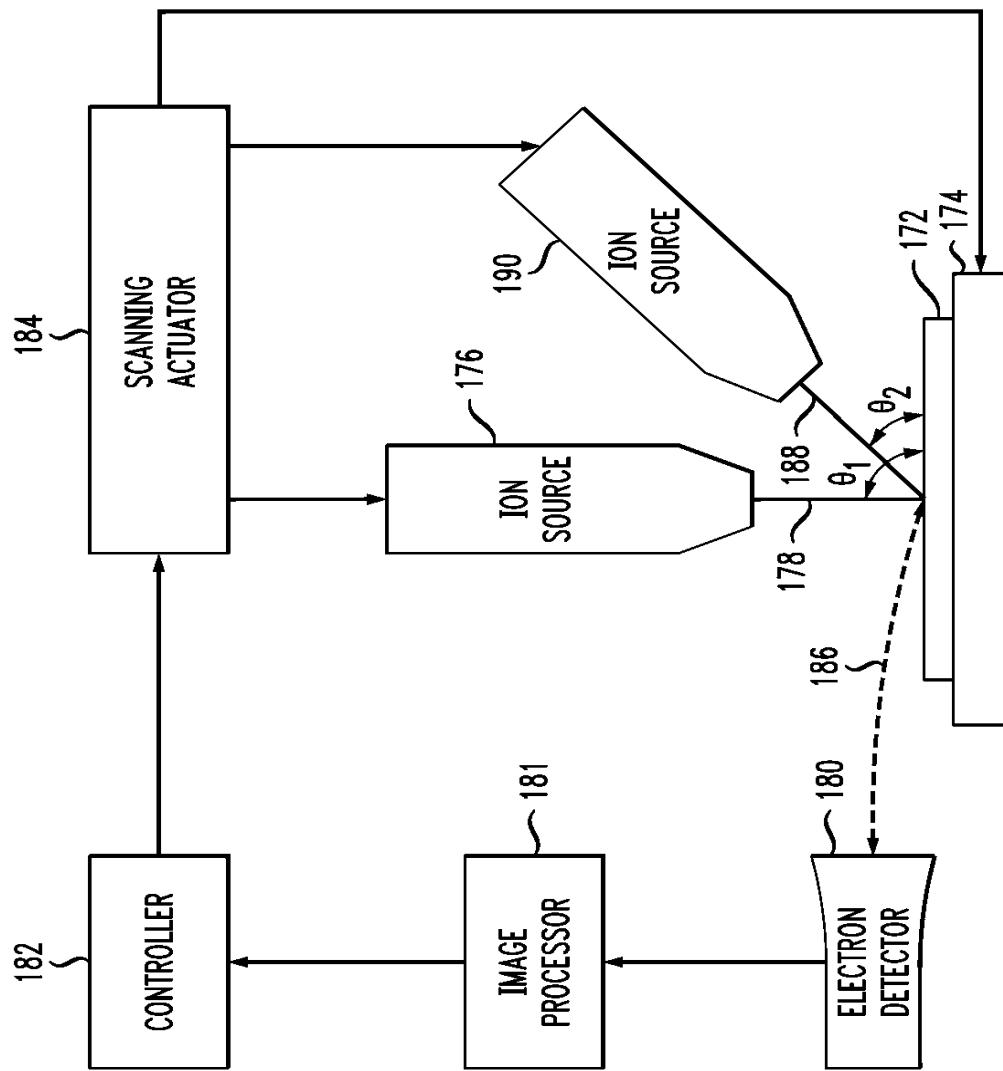
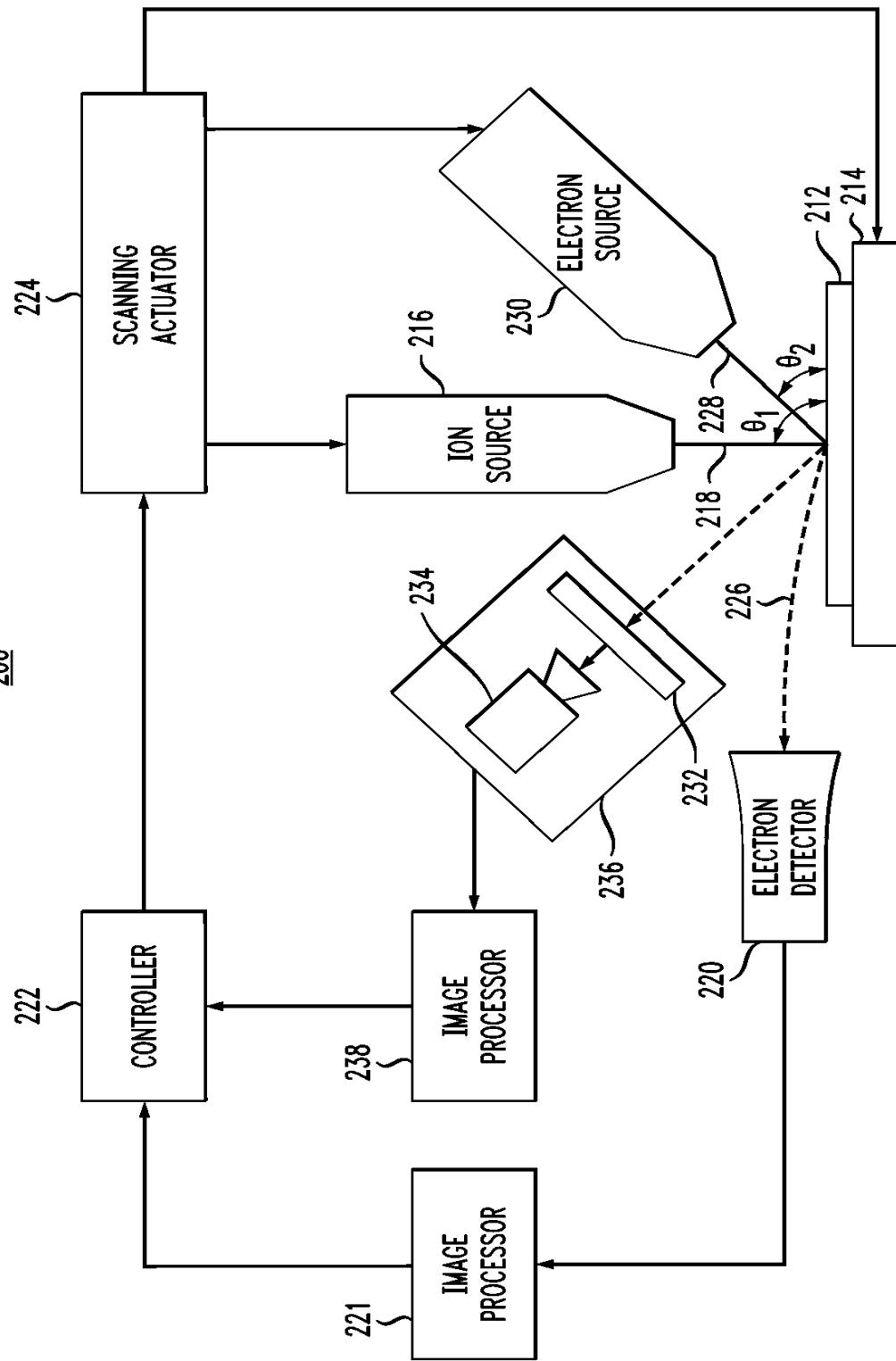


FIG. 24



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 25
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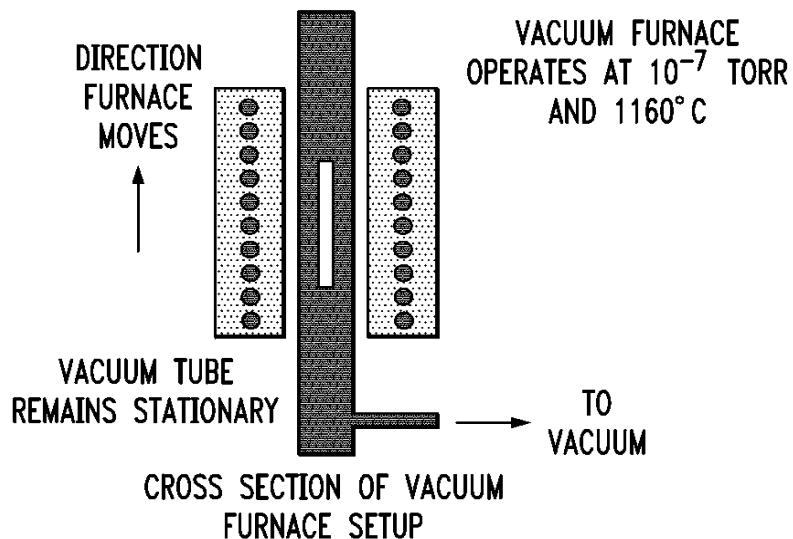


FIG. 26
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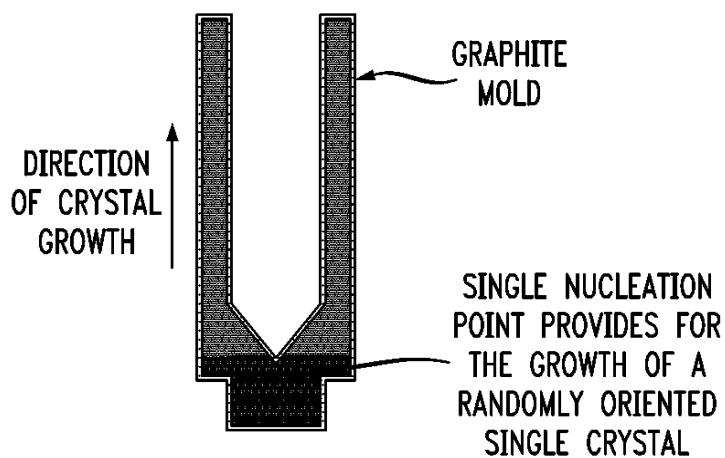


FIG. 27

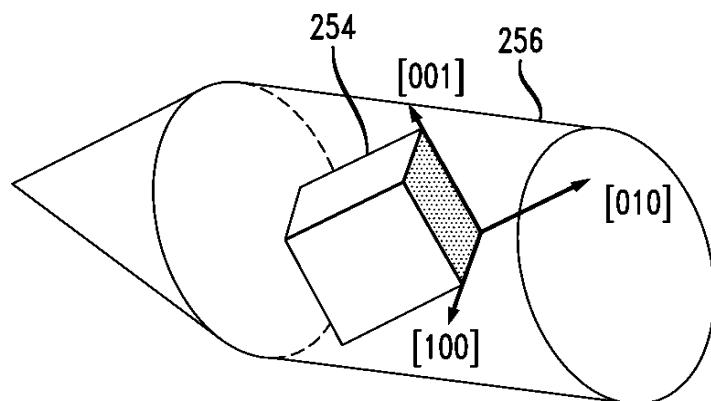


FIG. 28
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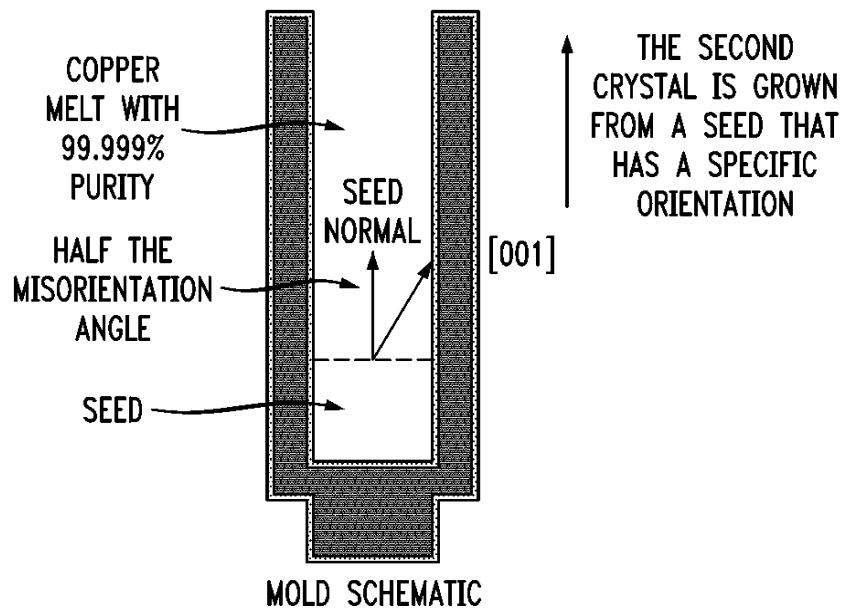


FIG. 29

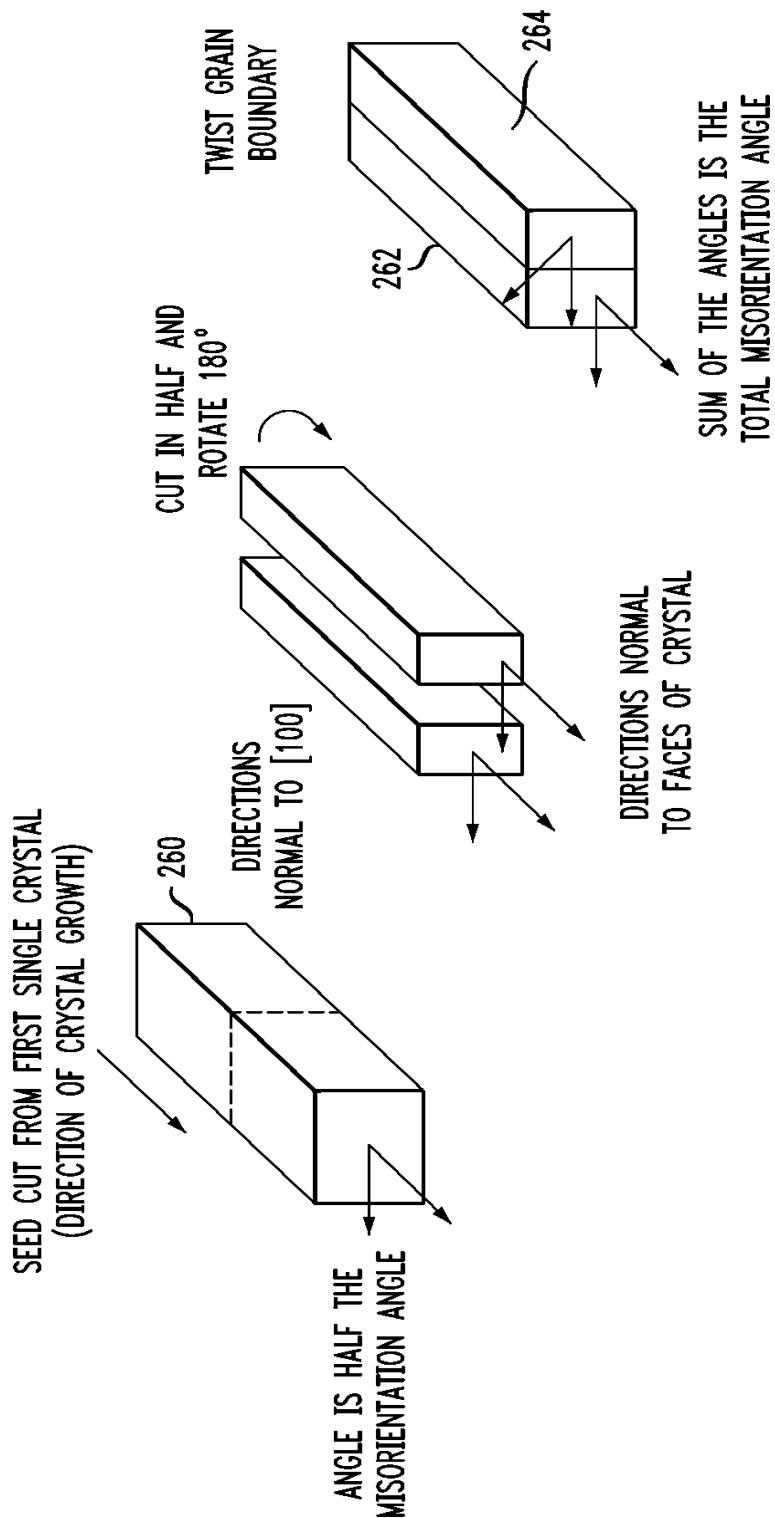
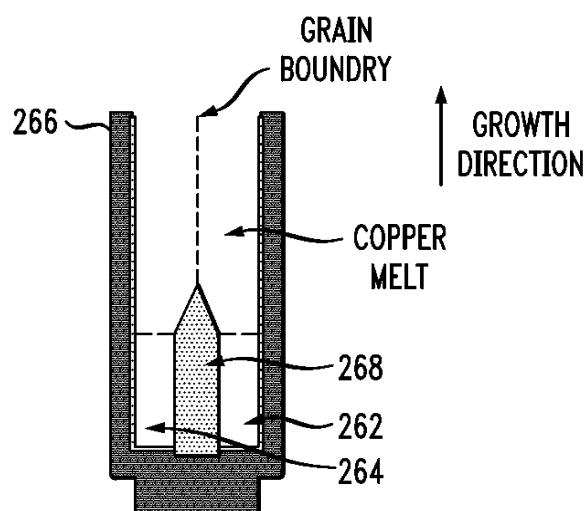


FIG. 30

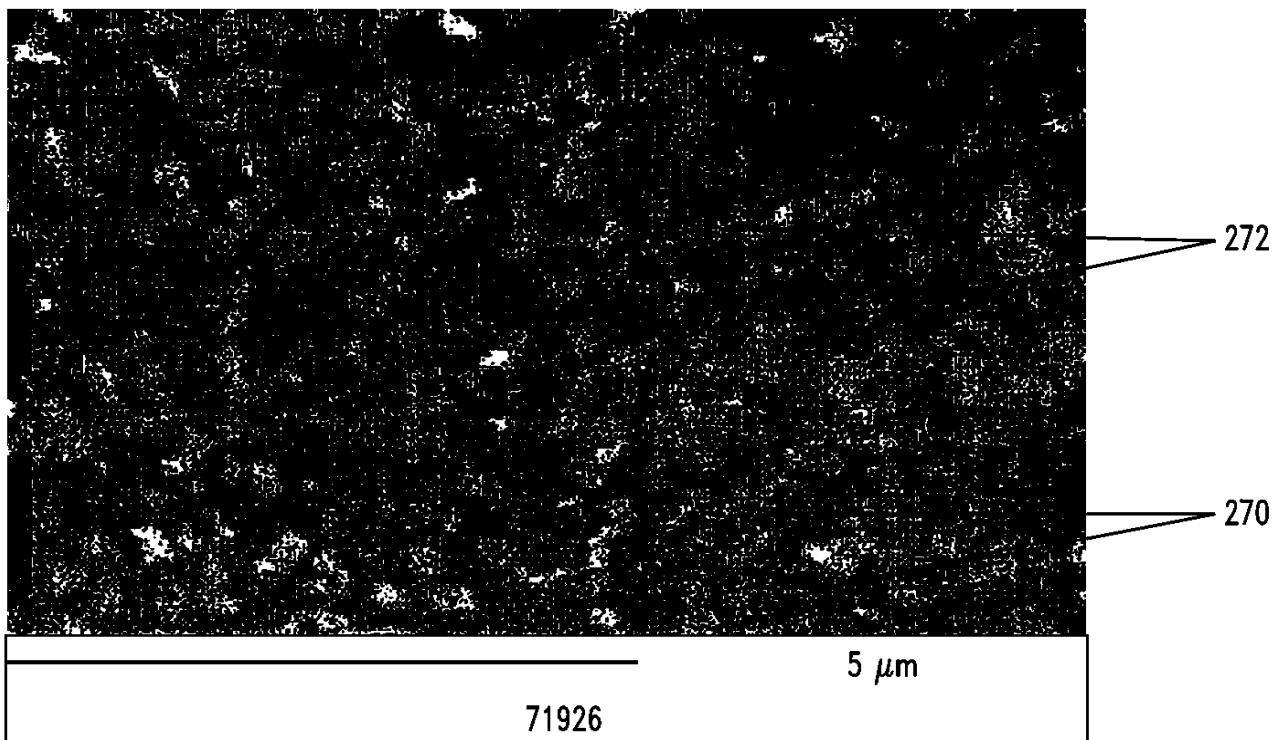


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HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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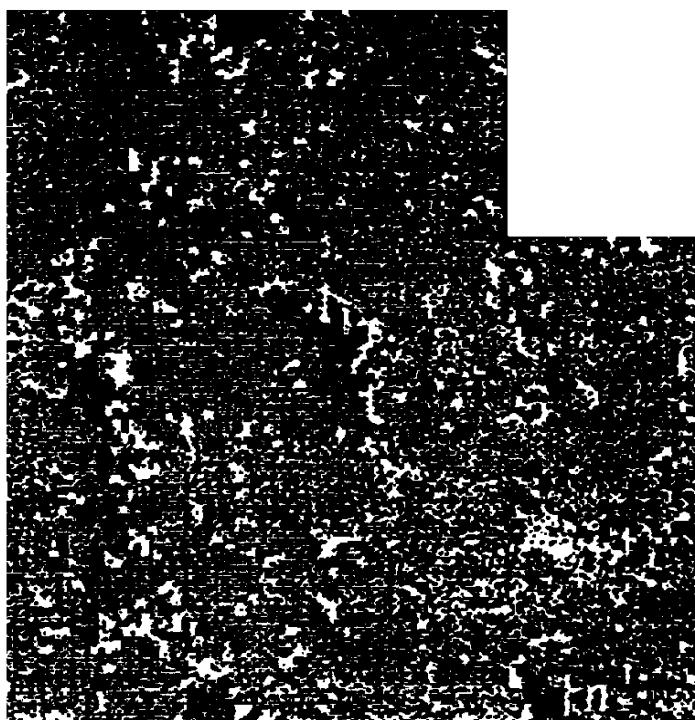
FIG. 31



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

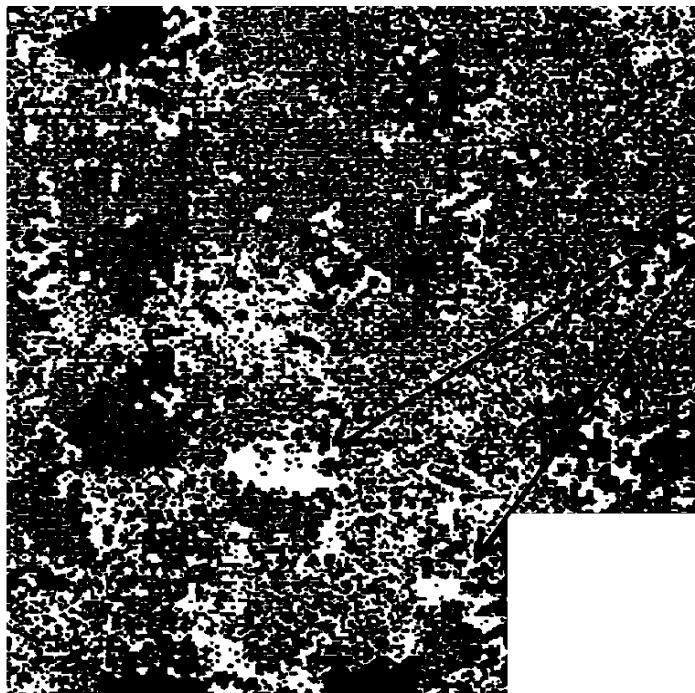
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FIG. 32A



IPF Map [001]

FIG. 32B



IPF Map [001]
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HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 33A

h	k	l	x	y	z	$ hkl $	Tol	Frac
0	0	1	0	0	1	10.00	0.00	0.00
1	1	0	0	0	1	10.00	0.97	0.00
1	1	1	0	0	1	10.00	0.00	0.00
0	1	5	0	0	1	10.00	0.00	0.00
1	1	4	0	0	1	10.00	0.02	0.14

FIG. 33B

h	k	l	x	y	z	$ hkl $	Tol	Frac
0	0	1	0	0	1	10.00	0.00	0.00
1	1	0	0	0	1	10.00	0.00	0.84
1	1	1	0	0	1	10.00	0.00	0.00
0	1	5	0	0	1	10.00	0.00	0.04
1	1	4	0	0	1	10.00	0.00	0.14

HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
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FIG. 34



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 35



HOUGE 31-1-3-30
Serial No. 10/505,198
Hitt Gaines, PC; Charles Gaines (972) 480-8800
REPLACEMENT SHEET

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FIG. 36A

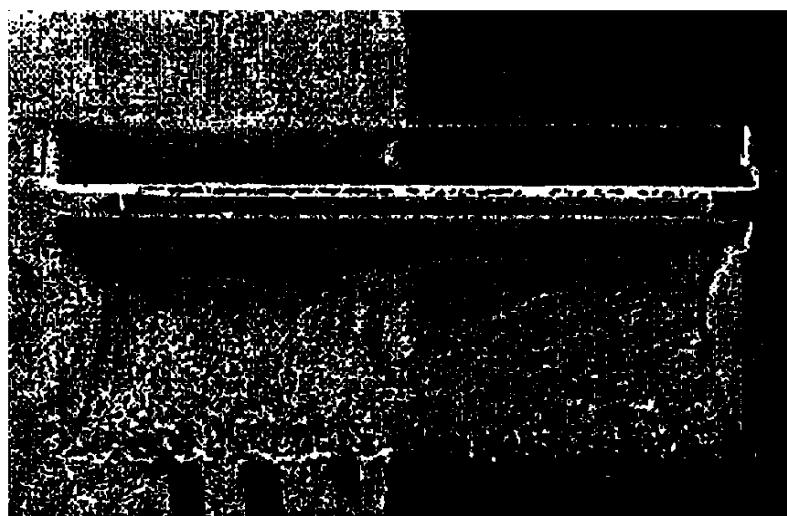


FIG. 36B

